The CTSA process is applicable to any industry sector that can benefit from the reduced risk and increased efficiency that results from using a cleaner product, process, or technology. Information needs and understanding of environmental issues differ from business to business and from industry to industry, however. For example, the issues and methods of assessing risk and exposure for computer workstations would differ substantially from those of the dry cleaning industry. Industries dominated by a few large companies, such as the aerospace industry, will have different data requirements than an industry with thousands of member companies, such as the printing industry.

Chapter 4

OVERVIEW OF THE MODULE DESCRIPTIONS

For these reasons, the module descriptions in this publication are developed to:

- Provide basic information suitable for a wide audience with a broad range of information needs.
- Give a DfE project team a basic understanding of the analytical concepts and methodology for completing a module.
- Provide references for sources of more detailed information.

The module descriptions were *not* formulated to give a complete accounting of all of the assumptions, analytical methods, or steps required for some of the more complicated analyses, such as exposure assessment. For these analyses, the reader is referred to published guidance, with references provided in the module descriptions. In addition, many of the modules describe analyses or data evaluations that cannot be performed without substantial expertise and experience (e.g., the Human Health Hazards Summary, Environmental Hazards Summary, Exposure Assessment, and Risk Characterization modules). For these and other analyses, users of this publication who do not have the necessary expertise are urged to seek assistance in completing the module.

FORMAT OF THE MODULE DESCRIPTIONS

Each of the module descriptions is organized according to a standard format that emphasizes the basic concepts behind each module. The descriptions do not necessarily provide a detailed accounting of all of the steps for completing the module. If, however, the basic methodology is

the same regardless of the industry (e.g., data sources and methods for collecting or estimating chemical properties data), the module gives a brief, step-by-step methodology.

The following describes the sections that are presented in each module:

- The ***Overview*** section provides a brief overview of the types of data collected or analysis performed in each module.

- The ***Goals*** section contains a list of the module's goals. This may include a description of how this module fits into the DfE process, whether information from this module is necessary input for any other module(s), and types of information a DfE project team would gain by completing this module.

- The ***People Skills*** section includes a description of the skills, knowledge, or expertise required to complete the module. It should be noted that different types of knowledge are required to complete different modules. For example, the Human Health Hazards Summary requires expertise in toxicology and epidemiology, while the Chemical Properties module requires a basic understanding of chemistry.

- The ***Definition of Terms*** section lists definitions of some of the technical terms used in the module, and is intended to familiarize the reader with the terms and data points described in the Approach/Methodology section. In some cases, other relevant terms are included although they are not used in the module *per se*. Many of the definitions include typical units of measure; equivalent English units follow metric units where appropriate.

- The ***Approach/Methodology*** section provides a brief summary of the basic module steps, including any data transfers to or from other modules. Some modules consist almost entirely of a data collection effort (e.g., the Chemical Properties module) while in others, data collection is the first step of a more complex analysis (e.g., the Exposure Assessment module).

- The ***Methodology Details*** section provides details and/or examples of the more complex steps in the Approach/Methodology section. In some of the modules this includes examples of a table or other format used to present module results.

- The ***Flow of Information*** section contains examples of the information transfers into and out of the module (e.g., the Market Information module receives information from the Chemical Properties module and transfers information to the Cost Analysis module). It also illustrates these inputs and outputs between modules in a flow diagram, and lists two or three examples of data elements that are transferred.

- The ***Analytical Models*** section provides a table of references for analytical models or software that can be used to complete this module, and the type of analysis performed by the model. For this and the next two sections, references are listed in shortened format

(author, date, title), with complete references given in the reference list following Chapter 10.

- The ***Published Guidance*** section provides a table of published guidance on methods for conducting this type of assessment, guidelines for interpreting results, and guidance on using standard default assumptions. This includes document references in shortened format and descriptions of the type of information provided.

- The ***Data Sources*** section provides a table of data sources and the types of data to be found in the source. This includes on-line data bases, standard desk references, and other sources of published data.

The modules are described in Chapters 5 through 10, and are grouped together in the chapters according to the basic kind of information collected or analyses performed. Chapter 5 describes the modules concerning basic chemical and process information. Chapter 6 presents the risk-related modules. Chapter 7 presents modules traditionally related to competitiveness, including performance, cost and regulatory status. The modules in Chapter 8 address conservation issues, including energy impacts and resource conservation. Chapter 9 discusses additional improvement opportunities that may be realized through a pollution prevention or control technology assessment. Chapter 10 describes how all of this information is brought together to evaluate the trade-off issues from a societal or individual business perspective.